IN THE U' STATES PATENT AND TRADEMAR FFICE 80. / 202 PATENT APPLICATION

Inventor(s): FODOR et al.
Appln. No.: 08 | 670,118
Series Code ↑ | Serial No. ↑
Filed: June 25, 1996
Title: COMPUTER ANALYSIS OF HYBRIDIZATION DATA FOR BASE-CHECKING THE SEQUENCE OF A TARGET ...

Group Art Unit 1807
Examiner: Zitomer, S.
Atty. Dkt. 237685 | 1004.B
M# | Client Ref
(Our Deposit Account No. 03-3975)
(Our Order No. 71180 | 237685
C# | M#
Date: June 5, 1997

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes the herewith attachment of same date and subject which is incorporated hereinto by reference and the signature below is treated as the signature to the attachment in absence of a signature thereto.

FEE REQUIREMENTS FOR CLAIMS AS AMENDED

1. "Small Entity" statement(s) filed
☐ previously
☐ herewith
(No.)

	Claims remaining after amendment	Highest number previously paid for		Present Extra	Large/Small Entity	Additional Fee	Fee Code
2. Total Effective Claims	24	**minus	25	0	x $22/$11 =	+ 0	103/203
3. Independent Claims	5	***minus	3	2	x $80/$40 =	+80	102/202
4. If amendment enters proper multiple dependent claim(s) into this application for first time (leave blank if this is a reissue application) ..... add					+ $260/$130 =	+ 0	104/204
5. Original due Date: JUNE 5, 1997		☐ NONE					
6. Petition is hereby made to extend the original due date to cover the date this response is filed for which the requisite fee is attached		(1 mo) (2 mos) (3 mos)		$110/$55 = $390/$195 = $930/$465 =	+ 0		115/215 116/216 117/217
7. Enter any previous extension fee paid since above original due date and subtract					-		
8. Extension Fee Attached						+ 0	
9. If Terminal Disclaimer attached, add Rule 20(d) official fee					+ $110/$55 =	+ 0	148/248
10. If IDS attached requires Official Fee, ... add or if Rule 97(d) Petition ..... add					+ $230 = + $130 =	+ 0	126 122
11. After-Final Request Fee per rules 129(a) and 17(r)					+ $770/385 =	+ 0	146/246
12. No. of additional inventions for examination per Rule 129(b)					x $770/385 ea =	+ 0	149/249
13. Petition fee for						+	
14. TOTAL FEE ENCLOSED =						$ 80	

15. *If the entry in this space is less than entry in next space, the "Present Extra" result is "0".
16. **If the "Highest number previously paid for" in this space is less than 20, write "20" in this space.
17. ***If the "Highest number previously paid for" in this space is less than 3, write "3" in this space.

CHARGE STATEMENT: The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown in the heading hereof, for which purpose a duplicate copy of this sheet is attached.
This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.

Query: Is appeal deadline now? If so, file Notice of Appeals separately.

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NOTE: File this cover sheet in duplicate with PTO receipt (CDC-103A) and attachments

#9/B
L. Wanner
6/30/97

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

FODOR et al.

Group Art Unit: 1807

Appln. No.: 08/670,118

Examiner: Zitomer, S.

Filed: June 25, 1996

FOR: COMPUTER ANALYSIS OF HYBRIDIZATION DATA FOR BASE-CHECKING THE SEQUENCE OF A TARGET NUCLEIC ACID MOLECULE

* * * * *

June 5, 1997

AMENDMENT

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

In response to the Office Action dated May 6, 1997, please amend the above-identified application as follows:

IN THE CLAIMS:

Please add the following new claims:

Sub C' B'

--32. A method for comparing nucleic acid sequences in two or more collections of nucleic acid molecules, the method comprising:

(a) providing a plurality of target elements bound to a solid surface, each target element comprising a target nucleic acid;

(b) contacting the target elements with:

(i) a first collection of labelled nucleic acid comprising a sequence substantially complementary to a target nucleotide sequence, and

(ii) at least a second labelled nucleic acid comprising a sequence complementary to a target nucleotide sequence;

wherein the first and second labels are distinguishable from each other; and

(c) detecting the binding of the first and second labelled complementary nucleic acids to the target nucleic acids.

33. The method of claim 32, wherein the solid support is a plurality of beads.

~~34~~. The method of claim ~~32~~, wherein the first and second labels are fluorescent labels.

35. A kit for determining nucleic acid sequences in a nucleic acid sample, the kit comprising:

(a) a solid support having an array of preselected target nucleic acids bound thereto where the array has at least two members; and

(b) a container containing reference nucleic acids, where said reference nucleic acids comprise sequences that are complementary and non-complementary to at least one member of the array.

36. The kit of claim 35, wherein the kit further comprises two different fluorescent labels.

37. A substrate with a surface having a microarray of at least 10^3 distinct polynucleotide or polypeptide biopolymers per cm^2 surface area, each distinct biopolymer sample (I) being disposed at a separate, defined position in said array, (ii) having a length of at least 50 subunits, and (iii) being present in an amount effective to permit detection when hybridized to a labelled target sample.

4 ~~38~~. A method of detecting differential expression of each of a plurality of genes in a first cell type with respect to expression of the same genes in a second cell type, said method comprising:

adding a mixture of labeled nucleic acid from the two cell types to an array of polynucleotides representing a plurality of known genes derived from the two cell types, under conditions that result in hybridization to complementary-sequence polynucleotides in the array; and

examining the array by fluorescence under fluorescence excitation conditions in which polynucleotides in the array that are hybridized ~~predominantly~~ to labeled nucleic acid derived from one of the cell types give a distinct fluorescence emission color and polynucleotides in the array that are hybridized to labeled nucleic acid derived from the other cell types give a different fluorescence emission color.

5 ~~39~~. The method of claim 4 ~~38~~, wherein the array of polynucleotides is formed on a substrate with a surface having an array of at least 10^3 distinct polynucleotide ~~or polypeptide~~

B'l cont'd ~~biopolymers~~ in a surface area of about 1 cm^2, each distinct ~~biopolymer~~ polynucleotide being disposed at a separate, defined position in said array.--

REMARKS

New claims 32-39 are being presented for possible interference as discussed in more detail below.

With respect to the Examiner's restriction requirement, the Applicants elect the Group II (method) claims 26-31. It is believed that all of the newly added claims 32-39 or at least method claims 32-34, 38 and 39 should be examinable with the elected Group II claims. However, if the new claims should be considered restrictable from the Applicants' Group II claims, the Applicants would elect the method claims presented herein for examination. However, as noted, it is believed that all of the new claims should be examinable with the Group II claims and action on all such claims (i.e., claims 26-31 and new claims 32-39, or at least new claims 32-34, 38 and 29) is requested.

As for the requirement for election of species, the Applicants elect the polynucleotide embodiment. Claims 26-31 and all of the newly added claims are readable thereon.

Of the new claims, claims 32-36 represent modified copies of claims presented in WO 96/17958 while claims 37-39 are modified versions of claims in WO 95/35505. Copies of the WO applications are attached.

It will be noted that WO 96/17958 refers to U.S. application Serial No. 08/353,018, filed December 9, 1994 while WO 95/35505 refers to U.S. application Serial No. 08/261,388

filed June 17, 1994 and Serial No. 08/477,809, filed June 7, 1995. The Applicants are not aware of the status of these U.S. applications or any continuing versions thereof.

The present application is a division of Serial No. 08/168,904 filed December 15, 1993 as a continuation of Serial No. 07/624,114 filed December 6, 1990. Accordingly, the present application has a disclosure which goes back to December 6, 1990, a date well ahead of the priority dates referred to in the WO applications referred to above.

Claims 32-36 presented herein are modeled after claims 1, 7, 9, 17 and 20, respectively, of WO 96/17958. These claims find support in the Applicants' disclosure as follows:

Claim	Support
32	See, for example, page 6, line 25 to page 7, line 26; page 12, beginning at line 12 and page 86, 2nd full ¶
33	Page 5, 3rd ¶
34	Page 86, lines 18-21
35	Page 131, 2nd ¶
36	Page 131, 2nd ¶ and page 86, 2nd ¶

PINKEL
Efd = 12-9-94

Claims 37-39 are modeled after claims 12, 18 and 19 of WO 95/35505. Claims 37-39 are supported by the Applicants' disclosure as follows:

Claim	Support
37	Page 36, first full ¶, particularly line 12; page 34, 2nd ¶; page 32, lines 32-34; the ¶ bridging pages 34-35; and page 50, line 17 and line 26 *et. seq.*
38	See, for example, pages 57, 81 and 85

SHALON
Efd = 6-17-94

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33	Page 5, 3rd ¶
34	Page 86, lines 18-21
35	Page 131, 2nd ¶
36	Page 131, 2nd ¶ and page 86, 2nd ¶

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37	Page 36, first full ¶, particularly line 12; page 34, 2nd ¶; page 32, lines 32-34; the ¶ bridging pages 34-35; and page 50, line 17 and line 26 *et. seq.*
38	See, for example, pages 57, 81 and 85

39	See, for example, the disclosure referred to above for claim 37.

Attached is a supplement to the Applicants' PTO-1449 of record with a copy of the citation. The further reference is not thought to be suggestive of the Applicants' invention as defined by the claims herein. However, the Examiner is requested to consider this additional art in the examination of the application and make the same of record.

The present submission is without prejudice to the presentation of further or amended claims for interference or otherwise.

Favorable action is requested.

Respectfully submitted,

CUSHMAN DARBY & CUSHMAN
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